

**Final
Site-Specific Unexploded Ordnance Safety Plan Attachment
For an Engineering Evaluation/Cost Assessment (EE/CA)
For Ranges Associated with Baby Bains Gap Road (BBGR),
Including:**

**Range 18, Down Range Feedback
(Known Distance) Range, Parcel 74Q;
Range 20, Infiltration Course, Parcel 76Q-X;
Range 23, Trainfire (Record) Range, Parcel 79Q;
Range 25, Known Distance Range, Parcel 83Q;
Range 26, Live Fire and Maneuver Range, Parcel 84Q-X;
Main Post Impact Area, Parcel 118Q-X;
and Former Range 25 East, Parcel 223Q**

Fort McClellan, Calhoun County, Alabama

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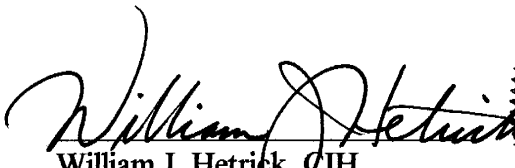
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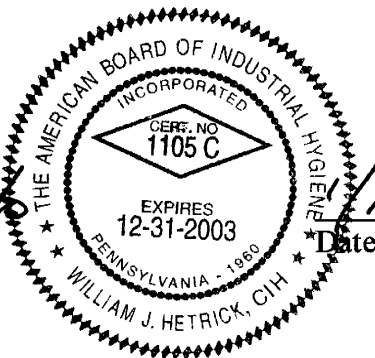
Final
Site-Specific Unexploded Ordnance Safety Plan Attachment
For EE/CA investigation for ranges Range 18, Down Range
Feedback (Known Distance) Range, Parcel 74Q, Range 20,
Infiltration Course, Parcel 76Q-X, Range 23, Trainfire
(Record) Range, Parcel 79Q, Range 25, Known Distance
Range, Parcel 83Q, Range 26, Live Fire and Maneuver Range,
Parcel 84Q-X, Main Post Impact Area, Parcel 118Q-X, Former
Range 25 East, Parcel 223Q.

I have read and approve this site-specific unexploded ordnance (UXO) safety plan attachment for Range 18, Down Range Feedback (Known Distance) Range, Parcel 74Q, Range 20, Infiltration Course, Parcel 76Q-X, Range 23, Trainfire (Record) Range, Parcel 79Q, Range 25, Known Distance Range, Parcel 183Q , Range 26, Live Fire and Maneuver Range, Parcel 184Q-X, Main Post Impact Area, Parcel 118Q-X, Former Range 25 East, Parcel 223Q at Fort McClellan, Alabama, with respect to project hazards, regulatory requirements, and IT Corporation UXO procedures.


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15 Nov 01
Date


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11/17/02
Date

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List of Acronyms

See Attachment 1, List of Abbreviations and Acronyms, of the Site-Specific Field Sampling Plan Attachment contained in this binder.

1.0 Introduction

This document defines anomaly avoidance procedures for activities to be performed by IT Corporation (IT) unexploded ordnance (UXO) personnel in conjunction with the site investigation at the Range 18, Down Range Feedback (Known Distance) Range, Parcel 74Q; Range 20, Infiltration Course, Parcel 76Q-X; Range 23, Trainfire (Record) Range, Parcel 79Q; Range 25, Known Distance Range, Parcel 183Q; Range 26, Live Fire and Maneuver Range, Parcel 184Q-X; Main Post Impact Area, Parcel 118Q-X; and Former Range 25 East, Parcel 223Q at Fort McClellan (FTMC), Calhoun County, Alabama. This document is not a stand-alone document; it must be used in conjunction with the *Fort McClellan Unexploded Ordnance Supplementary Procedures* (IT, 2001), attached as Attachment 1.

IT UXO personnel will perform visual surveys, assisted by hand-held magnetometers and metal detectors, to support the collection of surface soil, subsurface soil, groundwater, surface water, and sediment samples for chemical analysis. The purpose is to avoid any ordnance and explosives (OE) during hazardous, toxic and radioactive waste (HTRW) sampling activities. Intrusive anomaly investigation is not authorized for this site work.

Parcels 74Q, 76Q-X, 79Q, 83Q, 84Q-X, 118Q-X, and 223Q, are located in the east-central area of the Main Post of FTMC. These parcels are primary ranges of concern for the area of investigation as defined in the environmental baseline survey (Environmental Science and Engineering, Inc. [ESE], 1998). The study area includes the range firing line(s), target line(s) and impact zone(s). Study areas are defined in this work plan and are based on the historical range use and topography. The safety fan is defined as the down range area where personnel were not allowed when training was in progress.

Site descriptions for these areas include:

Range 18, Down Range Feedback (Known Distance) Range, Parcel 74Q. Historical records indicate that Range 18 was first shown on the 1956 U.S. Army Map Service maps for FTMC. Through FTMC personnel interviews, it is believed that this range was constructed around 1940 or 1941. Ordnance fired at this range was limited to M-1903 Springfield and M-1 Garand rifles, and more recently M-16 automatic rifle (5.56 millimeter) used during day and M-16 with tracer (white phosphorus) for night fire training. Historical records further report the range was formerly used as a machine gun range but no fuzed ordnance was used at Range 18.

The archives search report (ASR) calls this range the Washington Rifle Range and the Washington Known Distance Range (OA-44) and states the range was built during World War II. The ASR reports that Range 18 has been historically used as a rifle range and that there is no indication of explosive ordnance used on the range. For the purposes of this engineering evaluation/cost assessment (EE/CA) investigation, the study area where range firing line, target lines, and impact zone are located is defined as approximately 2,000 feet by 1,000 feet (49 acres).

An unimproved road connects this area to Iron Mountain Road (east of the parcel) to Town Center Drive (north of the parcel). One tributary of the South Branch of Cane Creek transects the center of the parcel, flowing east while a *second tributary of the South Branch of Cane Creek* flows southeast through the range impact zone. The overall elevation of Range 18 ranges from approximately 800 to 875 feet above mean sea level (msl) with the highest elevation at the top of the hill in the impact zone. Ground surface is relatively flat in the firing line area with a moderate downward slope to the northwest.

Range 20, Infiltration Course, Parcel 76Q-X. Historical records state that Range 20 has been in use since 1980. Ordnance fired at this range included M-60 (.308 caliber) machine gun and M-60 with tracer. Additionally, there are reports that dynamite, trinitrotoluene, and C4 explosive were used here and the range could have been used as a demolition training range and explosive pit(s) for artillery simulators. The ASR documents that the area near Range 20 has been historically used as Old Range 27 (OA-35) which appeared on the 1958 FTMC range map as Close Combat 1 & 2. Old Range 27 included a safety fan that was similar to ranges where rifle and machine gun live fire training was conducted. This range was abandoned in 1967. The ASR also points out that Range 20 is constructed within the World War I Artillery Impact Area (OA-29 and OA-39) (USACE, 1999).

A short gravel driveway connects Range 20 to Bains Gap Road which runs northeast to southwest to the northwest of the parcel. A tributary of Ingram Creek cuts across Range 20 draining the runoff water north and west towards Cane Creek. The overall elevation of Range 20 ranges from approximately 925 to 1,200 feet msl. The lowest elevation is found near the tributary and the highest elevation is at the top of the hill in the impact zone. Ground surface is relatively flat in the M-60 firing line and explosive pit area with a 75-foot descent to the tributary and a steep 125-foot rise towards the impact zone hillside southeast of the M-60 firing points.

Range 23, Trainfire (Record) Range, Parcel 79Q. Historical records state that Range 23 has been in use since 1951. Ordnance fired at this range included M-16 automatic rifle and M-16 with tracer. Additionally, that other artillery ordnance impact has been evidenced at Range 23 as base personnel have found shell fragments and an unexploded mortar round. The ASR Range 23 (OA-41) site history describes this range as starting the Inter-War period as a pistol range and later changed into rifle and machine gun training with multiple orientations and layouts utilized during this period. Further, the ASR reports that part of this area was used in Combat Range #1 (OA-43). The ASR also points out that Range 23 is constructed within the World War I Artillery Impact Area (OA-29 and OA-39).

Range 23 is located adjacent to Snap Lane west of the parcel. Three tributaries of Ingram Creek are present at the range, carrying hillside runoff water from the possible impact area behind the range through the firing lane area northwest under Snap Lane and towards Cane Creek. The overall elevation of Range 23 ranges from approximately 850 to 900 feet msl at the firing lane area and steeply rises from 900 feet beyond the 300-meter mounds to 1,050 feet at the top of the unnamed hill in the possible impact zone to the southeast.

Range 25, Known Distance Range, Parcel 83Q and Main Post Impact Area, Parcel 118Q-X. In August 2001, a separate work plan was prepared to address Range 25, Parcel 83Q and the Main Post Impact Area, Parcel 118Q-X (IT, 2001). In that work plan, the site history, descriptions, and sampling and analysis for the firing line and impact zone areas of the range are discussed; however, sampling to address the range safety fan was not discussed. The investigation and analysis performed under this plan will be added to the EE/CA report along with the firing line and impact zone sampling and analytical data described in the August 2001 work plan.

Range 25 is located on Central Main. It is one of the oldest ranges at FTMC; its first documented use was in 1937. Interviews with FTMC personnel indicate that Range 25 was originally constructed as a 600-yard known distance range for training with the M-1903 Springfield rifle (.30 caliber) and M-1 Garand rifle (.30 caliber). Weapons fired at this range includes various small arms, e.g., M-14 (7.62 millimeter [mm]), M-16 (5.56 mm), M-1 (.30 caliber), and M-60 (7.62 mm) with tracer ammunition. Personnel interviews indicate that this range was also used as a machine gun range. Records maintained at FTMC Range Control

indicate that the range was used for M-14 training (ESE, 1998). All records previous to this period are unavailable. Day-and-night-phase firing was practiced here (ESE, 1998).

During previous site walks, numerous mortar rounds were observed by ESE personnel on the ground surface in an impact area behind (north) of the Range 25 berm (Parcel 118Q-X). Ordnance items observed include mortar and artillery rounds. These items are sometimes encountered after heavy rains. Numerous 3-inch mortar rounds were also observed behind the backstop at this range during the site visit by ESE personnel preparing the environmental baseline survey (ESE, 1998). Personnel of the local Army Explosive Ordnance Disposal unit accompanied ESE personnel to this site and report that these 3-inch mortar rounds appeared to be sand-filled or otherwise inert.

Range 26, Live Fire and Maneuver Range, Parcel 84Q-X. Historical records state that Range 26 was first displayed on the 1959 U.S. Army Map Service map. FTMC Range Control records show range continuous usage from 1976 to base closure using M-16 for day and night fire and maneuver training. According to the ASR, the prior use of this area was the Infiltration Course (OA-58). The Infiltration Course was first shown on the 1949 aerial photo map and this area was labeled “R-26” on the 1958 and 1967 maps. This range was abandoned in 1974. The ASR also points out that Range 26 is constructed within the World War I Artillery Impact Area (OA-29 and OA-39).

Range 26 is accessed via a gravel driveway that connects the range to Snap Lane near the intersection of Snap Lane and Bains Gap Road northwest of the parcel. Two tributaries of Ingram Creek collect runoff from the hillsides to the south and east (possible impact area) and flow northwest traversing the firing lanes in two locations. The overall elevation of Range 23 firing lanes gradually increases from approximately 875 to 900 feet above msl then increases from 900 feet to 975 feet above msl at the hillside in the possible impact zone approximately 500 feet downrange of the firing lanes.

Former Range 25 East, Parcel 223Q. Range 25 East is only shown on the General Map of FTMC (Office of the Post Quartermaster, 1937). According to historical records, no other documentation for Range 25 East exists and the specific usage and dates of operation for this range are unknown. It was presumed in the environmental baseline survey that this range had the same layout orientation as Range 25 and that the same rifle caliber weapons were fired here. The

ASR discusses the Bandholtz Rifle Range (OA-37) and states that historical maps show that at one time Range 25 was larger and had a different orientation. This assertion suggests the existence of Range 25 East.

Other ranges have been built over this former range (i.e., part of historic range Old Range 27, Range 20, and Range 26, Range 28). The ASR also points out that this area is within the World War I Artillery Impact Area (OA-29 and OA-39).

The firing line area of Former Range 25 East is bisected by Bains Gap Road which also runs through the impact zone area on the northeast side of the range. Two tributaries of Ingram Creek drain runoff water from the hillside in the north (where the possible impact zone would be) and in the east (from the Range 26 firing lane area). These tributaries meet near the parking area at Range 26, cross under Bains Gap Road, and continue flowing west towards Cane Creek. The overall elevation of Former Range 25 East ranges from approximately 825 to 1,025 feet above msl at the top of the hillside in the possible impact zone. Ground surface rises gradually in the firing line area with a steep rise in the possible impact zone.

2.0 UXO Team Composition

UXO team and personnel requirements will be in accordance with EP 75-1-2 (U.S. Army Corps of Engineers [USACE], 2000) and the installation-wide sampling and analysis plan (IT, 2000) for FTMC. A UXO team will be on site during all sampling or intrusive activities where OE is suspected.

3.0 Responsibilities

The UXO Team Leader is responsible for ensuring that personnel performing UXO tasks at FTMC have the required qualifications. The UXO Team Leader supervises and coordinates UXO work activities.

The UXO team member(s) will provide UXO avoidance, explosive ordnance recognition, location, and safety functions for IT employees and any subcontractors during sampling activities. Sampling activities at this site include surface and subsurface soil sampling, drilling

and installing monitoring wells, sampling of monitoring wells, survey of sample points, and safe access and egress to and from the site in support of HTRW operations.

4.0 Authority

UXO personnel are authorized to perform UXO avoidance activities only. UXO personnel are not permitted to initiate OE investigative or disposal activities.

5.0 UXO Avoidance Procedures to Support HTRW Sampling Activities at FTMC

The scope of work for site investigation activities at Range 18, Down Range Feedback (Known Distance) Range, Parcel 74Q, Range 20, Infiltration Course, Parcel 76Q-X, Range 23, Trainfire (Record) Range, Parcel 79Q, Range 25, Known Distance Range, Parcel 183Q, Range 26, Live Fire and Maneuver Range, Parcel 184Q-X, Main Post Impact Area, Parcel 118Q-X, Former Range 25 East, Parcel 223Q, includes the following UXO tasks:

- Provide UXO avoidance support during the collection of surface soil samples, subsurface samples, groundwater samples, subsurface water samples, and sediment samples. Sample types and locations are defined in Section 4.0 of the site-specific field sampling plan contained in this binder.
- Provide downhole UXO support for all intrusive drilling to determine buried downhole hazards.
- Provide surveys for all intrusive field activities (e.g., digging, fence post driving, grading, or excavation).

Since these areas may contain OE contamination, the UXO team must conduct a surface access survey for UXO before any type of activities commence. This includes foot and vehicular traffic. UXO avoidance activities will include:

- a) Access Corridors and Sampling Sites
 - (1) The UXO team will conduct access surveys of the footpaths and vehicular lanes approaching and leaving each of the investigation sites. Access surveys will begin in a known clear area and proceed by the most direct

route to the sampling site. The boundaries of the access route and sampling site will be marked with white tape or white pin flags.

- (2) If an OE item is found during the survey, the location will be conspicuously marked with a red pin flag and avoided by altering the route. Additionally, UXO personnel will complete the IT FTMC “Unexploded Ordnance Report Form.” Subsurface anomalies will be marked with a yellow flag.
- (3) The boundaries of the access route and sampling site will be recorded in the IT FTMC “UXO Sketch Log” by the UXO technician. Additionally, anomaly locations will be recorded on this form.
- (4) Instrumentation used at this site will include the Schonstedt GA 72, the CST Corporation Magna-Trak 102, or the Whites Spectrum XLT Metal Detector. Additionally, the Schonstedt MG-220 or MG-230 will be set up for downhole monitoring. All equipment will be operated as specified in the appropriate operator’s manual. All equipment will be function tested prior to use following the procedure in paragraph 3.2, *FTMC UXO Supplementary Procedures* (IT, 2001) and the operator’s instructions. The Whites Metal Detector will be used in conjunction with hand-held magnetometers in areas of high concentrations of rocks with a magnetic signature to assist in eliminating anomalies created by “hot rocks.”
- (5) The access route will be twice as wide as the widest vehicle that will use the route. Footpath lanes will be a minimum of three feet wide.
- (6) If surface OE or subsurface anomalies are encountered that cannot be avoided, the access route must be diverted to avoid contact. No personnel will be allowed outside of the surveyed areas without a UXO escort. No unescorted access is permitted inside the corridor area until a survey has been completed and boundaries established.
- (7) At the actual investigation site, the UXO team must also complete a survey of an area sufficient to support mechanical excavation equipment maneuverability, parking of support vehicles, and establishment of decontamination stations. As a minimum, the surveyed area should have a dimension in all directions equal to twice the length of the largest vehicle or piece of equipment to be brought on site. White pin flags or tape will be used to mark the boundaries of the surveyed site.
- (8) Surface soil samples are normally collected at depths of 0 to 12 inches below ground surface. The UXO team will survey the area of the soil

sampling site for any indication of OE. Sampling is not permitted at any location where an anomaly has been detected.

- (9) Tracked or other vehicles whose movement would disturb the soil are authorized for use only in areas that have been surveyed and in which no anomalies have been detected.
- (10) If grading or soil movement is required to support access corridor development or a sampling location, UXO personnel will perform a survey. After an area has been surveyed and no anomalies have been detected, soil can be removed at a rate of no more than one foot per cut. If additional grading is required, another survey will be performed after each one foot of soil has been removed.
- (11) Erosion and weathering will typically cause some OE items to leach to the surface or otherwise be uncovered. In cases where access corridors or sampling sites have not been surveyed or traversed for a period of time, additional surveys may be required. The decision regarding the performance of follow-on surveys will be made by the site superintendent with input provided by the FTMC UXO Safety Officer and FTMC UXO Team Leader. The decision will be based on such factors as: the amount of time since the last survey was performed, the weather during this period, the terrain in the area of concern, the former use of the area, and the type of quantity of OE found during initial surveys.
- (12) Incremental geophysical surveys at drill hole locations will be initially accomplished using a hand auger to install a pilot hole. An access survey of the immediate vicinity of the pilot hole location will precede the installation of the pilot hole. The UXO team will use a manual or mechanical portable auger to install the pilot hole. The augured hole will be inspected for anomalies with a geophysical instrument (configured for downhole utilization) in two-foot increments as the hole is advanced below ground surface. Hand augering of a hole will not proceed if an anomaly is detected that cannot be positively identified as inert material. If a suspect OE item is encountered, the sampling personnel must select a new drill hole location. The pilot hole will also be inspected with the geophysical instrument upon reaching the final depth of the hand augered hole, providing a total clearance depth equal to pilot hole depth plus two feet. If the proposed site is still free of magnetic anomalies, the drilling equipment may be brought on site and utilized. The UXO team will continue to inspect the drill hole for anomalies at two-foot increments as the drilling is advanced from the clearance depth of the pilot hole until a depth of 12 feet is reached.

b) Vegetation Removal

In cases where large trees or other vegetation removal is required to support access or sampling operations, the procedures in paragraph 4.2, *FTMC UXO Supplementary Procedures* (IT, 2001) will be followed.

c) Magnetometer/Metal Detector Checkout and Field Procedures

The procedures in paragraph 3.0, *FTMC UXO Supplementary Procedures* (IT, 2001) will be followed. Since portions of the sites described in this safety plan includes a portion(s) of a World War I artillery range impact area, the function test will utilize the function test ordnance that most closely approximates the 75 mm projectile. For work on Range 25, the 60 mm mortar or 75 mm projectile will be used to function test the instruments since 3-inch mortar ammunition has been seen during site walks.

d) UXO Logbooks and Documentation

All UXO personnel identified in paragraph 5.0, *FTMC UXO Supplementary Procedures* (IT, 2001) will maintain a logbook in accordance with that procedure.

6.0 Safety

In addition to the requirements of the site-specific safety and health plan prepared for this site, the UXO personnel will ensure the following:

- a) During the access and subsurface surveys conducted with a geophysical instrument, the UXO team members will not wear safety shoes or other footwear that would cause the instrument to present a false response.
- b) The UXO team will not be required to wear protective helmets unless an overhead hazard is present.
- c) The FTMC UXO Safety Officer will monitor UXO activities to ensure compliance with applicable safety requirements.
- d) The FTMC UXO Safety Officer will certify that all FTMC UXO workers are capable of performing UXO activities at FTMC based on observation of work performance.

- e) The FTMC UXO Safety Officer is responsible for all site-specific UXO training.
- f) The UXO technician on site will advise project personnel regarding all evacuation and/or exclusion zones as appropriate. The UXO technician will monitor all sampling site activities to ensure that only the minimum number of personnel are present on site.

7.0 Quality

The IT FTMC UXO Quality Control Officer will follow quality control instructions and procedures listed in Section 9.0 of the installation-wide OE management plan contained in Volume IV of the installation-wide sampling and analysis plan (IT, 2000) appropriate to this task and the FTMC UXO Supplementary Procedures. The IT FTMC UXO Quality Control Officer will also utilize the “UXO Avoidance Quality Control Report” to document his activities. Copies of this form will be provided to the IT quality assurance representative upon request.

8.0 References

Environmental Science and Engineering, Inc. (ESE), 1998, *Final Environmental Baseline Survey, Fort McClellan, Alabama*, prepared for U.S. Army Environmental Center, Aberdeen Proving Ground, Maryland, January.

IT Corporation (IT), 2001, *Fort McClellan Unexploded Ordnance Supplementary Procedures*, June.

IT Corporation (IT), 2000, *Final Installation-Wide Sampling and Analysis Plan, Fort McClellan, Calhoun County, Alabama*, March.

U. S. Army Corps of Engineers (USACE), 2000, *Engineering Publication, EP 75-1-2, Unexploded Ordnance (UXO) Support During Hazardous, Toxic, and Radiological (HTRW) and Construction Activities*, 20 November.

U.S. Army Corps of Engineers (USACE), 1999, *Archives Search Report, Maps, Fort McClellan, Anniston, Alabama*, July.

ATTACHMENT 1

FORT MCCLELLAN UNEXPLODED ORDNANCE SUPPLEMENTARY PROCEDURES

FTMC UXO SUPPLEMENTARY PROCEDURES

Subject: Ordnance and Explosives

1.0 INTRODUCTION

IT Corporation (IT) has been retained by the U.S. Army Corps of Engineers-Mobile District, under Contract Number DACA21-96-D-0018, to provide environmental services related to Base realignment and closure (BRAC) of Fort McClellan, Alabama. The Installation-Wide Ordnance and Explosives (OE) Management Plan for Fort McClellan (FTMC) was prepared by IT Corporation and submitted as a final document in March 2000. The Installation-Wide OE Management Plan was prepared to provide general guidance for conducting unexploded ordnance (UXO) work associated with hazardous, toxic, and radiological waste (HTRW) investigations and remedial activities currently in progress at FTMC. IT Corporation prepares site-specific field sampling, health and safety, and UXO safety plans for sites where fieldwork will occur that may potentially contain OE. A UXO Safety Plan is not prepared for sites that are not reported to be in areas containing OE.

1.1 Purpose

This document is intended to provide procedures to the field staff that outline UXO operations and clarify activities currently permitted under "anomaly avoidance." The document is not intended to replace any of the project documents currently approved; rather, it is intended to complement those documents with additional information that allows successful completion of the job.

2.0 FTMC EMPLOYEE ORIENTATION/TRAINING AND CERTIFICATION

The IT FTMC orientation program is designed to:

- Indoctrinate new employees to FTMC-unique procedures
- Verify compliance with regulatory certification requirements
- Provide continuing instruction and updating in UXO fundamentals to sustain readiness to safely perform UXO tasks

2.1 Responsibilities

The IT OE Service Center Operations Manager will oversee the training programs and maintain a master record of UXO employee training and certification status.

The UXO person designated as the senior IT UXO individual at FTMC will schedule the orientation listed below.

The FTMC UXO Safety Officer will:

- Conduct all UXO-specific orientation and training at FTMC
- Certify that each new UXO employee is capable of performing UXO work activities at FTMC
- Maintain FTMC training files and records on each UXO technician on site reflecting his or her current training status.

2.2 UXO Employee Orientation

Every UXO employee assigned to FTMC will receive a site-specific UXO orientation in addition to training required by the Occupational Health and Safety Administration (OSHA). This orientation will include, as a minimum, the following topics:

- Local emergency response drills and procedures
- Personal protective equipment (PPE) and personnel decontamination procedures
- Ordnance recognition/UXO expected to be encountered at FTMC
- Equipment safety
- FTMC site orientation
- Chemical warfare material (CWM) awareness and procedures
- Communications procedures
- FTMC Logbook/data recording procedures
- IT administrative policies and procedures
- Magnetometer checkout procedures.

Upon completion of the UXO employee orientation, the FTMC UXO Safety Officer will monitor the performance of the new hire for at least three workdays while conducting typical UXO activities. The FTMC UXO Safety Officer will

then certify that the individual is capable of performing UXO activities at FTMC based upon satisfactory performance of the three-day period. A copy of this certification will be maintained in the individual's site FTMC training file (see example at Attachment 1).

2.3 UXO Sustainment Training

All UXO technicians have had the OSHA 40-hour hazardous waste operations and emergency response (HAZWOPER) course in order to be initially certified at FTMC. They are also required to maintain the certification with an 8-hour OSHA refresher course on an annual basis. Additionally, all IT FTMC UXO personnel will have 8 hours of site-specific annual UXO sustainment training. This training can be performed incrementally (2 hours every quarter) at the discretion of the site superintendent in coordination with the FTMC IT UXO Safety Officer. Topics will include, but are not limited to, the following subjects:

- Site-specific environmental hazards
- Site-specific UXO hazards, ordnance fuzing, functioning and precautions
- Topics which the IT UXO Team Leader or IT Safety UXO Officer determines necessary to support FTMC UXO activities

Sustainment training will be conducted for a period of no less than 8 hours. Daily safety briefings, tailgate safety meetings, and other required site-specific training are not a substitute for this training. The purpose of this training is to provide each UXO employee with site-specific UXO training over and above OSHA requirements. The site-specific UXO training will be recorded in the project file and the UXO employee's personnel file.

3.0 FTMC MAGNETOMETER/METAL DETECTOR FUNCTION TEST AND FIELD PROCEDURES

This section provides FTMC magnetometer/metal detector function tests and operating procedures to be employed at all work sites that have been identified as requiring avoidance support.

3.1 Geophysical Test Plot

The purpose of a test plot is to provide a consistent environment where the equipment can be evaluated. The location of the geophysical test plot will be inside the IT compound. It will be established as follows

- The test plot will consist of an area approximately 20 x 20 feet and clear of vegetation and magnetic anomalies, located in the IT compound next to the southeast end of the office trailers.
- Five metal test objects will be buried at depths varying from 6 inches to 24 inches. The objects will approximate the weight, diameter, and length of an MK 2 grenade, a 60mm mortar, a 2.36-inch rocket warhead, a 75mm projectile, and a 37mm projectile. Additionally, three non-ferrous test objects will be buried at a depth of 2 inches to 8 inches. A 6-inch length of 1/2-inch reinforcing rod will be placed on the surface for use as a surface check source. Items with greater mass will be buried at greater depths. Each burial location will be marked with a wooden stake located about 6 inches to the north of the object. Each stake will be assigned a reference number and will be tagged or marked to denote the depth, type of item and orientation of the item. The site will utilize native soils; no fill material will be brought in from another area. Sand will be used to cover the area to mitigate the effects of wet weather.
- For downhole magnetometer testing, a length of 2-inch PVC pipe will be buried to a depth of 36 inches. The pipe should be of sufficient length to allow at least another 24 inches to extend above the surface of the ground. A metal object will be buried at a depth of 24 inches and 24 inches from the side of the pipe. The location of the item, similar in size and mass to a 75mm projectile, will be marked with a wooden stake tagged to denote the depth, type of item, orientation, and reference number assigned.

3.2 Magnetometer/Metal Detector Check-Out Procedures

- Prior to field use, all magnetometers and metal detectors will be set up following the guidelines in the manufacturer's operating manual for the specific instrument used. Instrumentation used at this site will include the Schonstedt GA 72, the CST Corporation Magna-Trak 102, or White's Spectrum XLT Metal Detector. Additionally, the Schonstedt MG-220 or

MG-230 will be set up for downhole monitoring. All equipment will be operated in a manner consistent with instructions contained in the appropriate operator's manual. All equipment will be function-tested prior to use. The White's Metal Detector will be used in conjunction with hand-held magnetometers in areas of high concentrations of rocks with a magnetic signature, to assist in eliminating anomalies created by "hot rocks." The operating manual for each of the instruments used at FTMC will be available for use with the equipment.

- Once the instrument has been determined to be working according to the manufacturer's operating manual, the operator will perform a function test on the FTMC geophysical test plot using the detection methods described in the manual. A function test will consist of using the instrument over a minimum of three test sources. The same sources will be used during each function test to ensure consistency. The instrument detection indicator, as described in the operator's manual, will be noted in the instrument logbook. For site checks, a 6-inch length of 1/2-inch steel reinforcing rod will be available to each operator at the work site.
- Instruments that fail to reproduce a detection indication consistent with previous tests will be checked to ensure that the power supply or batteries are sufficient. If the power supply is determined to be sufficient and the operator cannot find a fault in accordance with the operator's manual, the instrument will be tagged and removed from service.
- Function tests will be performed each morning before the equipment is put into service.
- If an instrument is determined to be working improperly, the FTMC UXO Team Leader and the site superintendent will be immediately notified. Any activities performed using that instrument since its last positive test procedure will be considered invalid and will require reevaluation.
- Upon completion of the function test, the "Magnetometer/Metal Detector Functions Test Data Sheet" (Attachment 2) and the equipment logbook will be filled out.

- After an instrument has been function-tested at the beginning of each day, the instrument will be checked at least once during every hour of use or each time the instrument is turned on after having been turned off. This check will consist of dropping the 6-inch length of 1/2-inch reinforcing rod in a clear area and passing the detector over the rod in a manner consistent with the operator's instructions. The instrument indication will be compared to the indication produced during the morning function test. Instruments that fail to produce a consistent indication will be checked and removed from service as required.

3.3 Equipment Documentation

Each piece of equipment will be assigned a logbook noting the make, model, manufacturer, and serial number of the equipment. The logbook and manufacturer's operating manual will be present when the equipment is tested. The following information will be recorded:

- Date and time
- The test plot object used (assigned stake number)
- The reading or indication at each test site
- Whether or not the reading or indication was satisfactory
- The name of the individual performing the test.

The IT FTMC Quality Control (QC) Officer will observe the daily testing of all equipment and will record the results of each test in his field logbook.

3.4 Magnetometer/Metal Detector Field Procedures

All intrusive field activities in potential OE areas (e.g., digging, fence post driving, grading, well installation or excavation) will be preceded by a UXO sweep. Each hole made in areas where OE may potentially be found will have a check immediately over the spot of the intrusion. Magnetometer operations at FTMC will assume a detection depth of one foot when surveying an area for excavation.

All magnetometers and metal detectors will be operated in accordance with the manufacturers specifications and procedures.

When surveying a potential area for a sampling well, an area of sufficient size will be surveyed to allow for installation of required pads and bollards. After the well

is installed, the location of bollards will be adjusted as required if an anomaly is detected during the bollard installation process.

The White's Metal Detector will be used to augment the magnetometers on sites where "hot rocks" are suspected. The purpose of using the metal detector in addition to the magnetometers is to eliminate the probability of "hot rocks."

4.0 FTMC ACCESS CLEARANCES, VEGETATION REMOVAL, AND ROAD MAINTENANCE

This section is designed to provide specific procedures regarding activities associated with the building of access corridors, vegetation removal, and road maintenance in support of FTMC operations.

4.1 Access Corridors

The purpose of access corridors is to enable IT personnel access to well and/or other types of sampling sites within FTMC. Access corridors will be created by marking the route, both length and width, in which a UXO survey has been performed. The marking method will be defined in each site-specific UXO safety plan. No unescorted access is permitted until a corridor has been established. If an anomaly is detected during the survey or during a subsequent excavation, it must be avoided, since investigation is not authorized. The route will be altered to avoid the anomaly for FTMC activities. A magnetometer is considered to reliably detect anomalies to a depth of one foot.

The size of each area to be surveyed is dependent on the type and quantity of equipment expected to be used on that site. The UXO survey crew will follow the procedures outlined in the site-specific UXO safety plan to determine the dimensions of the area to be surveyed. Normally, the width of the access route will be at least twice as wide as the widest vehicle that will use the route; footpaths will be a minimum of 3 feet wide.

Tracked or other vehicles, that disturb the soil are authorized for use only in areas that have been surveyed and no anomalies have been detected.

Erosion and weathering will typically cause some UXO items to leach to the surface or otherwise be uncovered. In cases where access corridors or sampling sites have not been surveyed or traversed for a period of time, additional UXO surveys may be required. The decision regarding the performance of additional

surveys will be made by the FTMC UXO team leader and the IT FTMC UXO Safety Officer. The site superintendent will be notified of this decision. This decision will be based on, but not limited to, such factors as: the amount of time since the last survey was performed; the weather during this period; the terrain in the area of concern; and the type and quantity of UXO found during initial surveys.

4.2 Vegetation Removal

In cases where removal of large trees or other types of vegetation is required, the following procedures will be followed:

- The UXO technician will survey around the base of the tree or vegetation, and, if no anomaly is detected, direct the bulldozer or other equipment to proceed. If an anomaly is detected, the location will be recorded and marked and another route will be selected. The size of the area to be surveyed will depend on the size of the suspected root system of the tree to be removed.
- Once the tree has been pushed over, the UXO technician will survey around the root ball and the area in and around the hole. If an anomaly is detected, the anomaly will be recorded and marked and an alternate route will be selected. If no anomaly is detected, the UXO technician will direct the equipment operator to proceed with the excavation.

4.3 Road Maintenance

Remote range roads and trails frequently require a certain amount of repair to remain passable. This section describes authorized actions regarding the maintenance of dirt or gravel range roads by IT UXO personnel.

- Bulldozers or grader-type equipment is authorized to repair roads and trails as long as a UXO survey has been performed and no anomalies have been detected.
- The UXO technician will observe the blade of the equipment as the earth is moved. If a potential UXO is uncovered, the UXO technician will signal the equipment operator to immediately stop the equipment. The UXO technician will then attempt to visually identify the object. If the object cannot be positively identified as a non-hazardous item, the

equipment will be moved, the location of the object marked and recorded on the IT FTMC Unexploded Ordnance Report Form (Attachment 3), and the route changed to avoid the object. If no suspicious objects are detected, the equipment will continue to move earth at a rate of no more than one foot of depth at a time. If, more grading is required after the first pass is complete the UXO technician will perform another survey. If no anomalies are detected, the equipment can repeat the grading process. If an anomaly is detected, the operation will be halted and the route changed.

- After an area has been surveyed and no anomalies have been detected, soil can be removed at a rate of no more than one foot per lift. If additional grading is required, a survey will be performed after each one-foot increment the soil has been removed.
- Earth may not, at any time, be moved at a rate of more than one foot in each lift.

5.0 FTMC UXO LOG BOOKS

All UXO team leaders or UXO technicians supporting HTRW operations will maintain a logbook. The purpose of the logbook is to record UXO actions and activities taken at each work site.

5.1 Responsibilities

UXO personnel will maintain an individual daily logbook of work activities.

The logbooks will be routinely inspected weekly by the UXO QC Officer and will be made available to the FTMC site superintendent upon request. Copies will be made daily and filed in the IT Field Project office.

Logbooks will contain bound and numbered pages. Entries will be on successive pages as work is performed. The individual using the logbook will sign the page after the last entry for that page has been made. Logbooks are part of the project legal file and will be filed with the project files upon completion of each investigation.

5.2 Data Requirements

As a minimum, individual logbooks will contain the following information:

- Date, time and location of UXO activities
- Personnel involved in the activities
- UXO activities performed, including UXO/anomalies found
- A description of areas swept
- A record of the magnetometer or other equipment used, including instrument serial number
- Weather conditions.

The IT FTMC QC Officer will utilize the IT FTMC “UXO Avoidance Quality Control Report” (Attachment 4) to document checks of field activities.

Additionally, UXO personnel will complete IT FTMC Form “UXO Sketch Log” (Attachment 5) and IT FTMC Unexploded Ordnance Report Form. The “UXO Sketch Log” will contain a description of activities, including the dimensions of the area surveyed. A description of the length and width will be recorded, as well as the manner in which the survey was performed. These forms will be completed as required and presented to the site superintendent.

ATTACHMENT 1

FTMC Employee Certification (Example)

I certify that (name of individual) has fulfilled all UXO orientation requirements and has been observed by me for a period of 3 work days and is therefore eligible to perform UXO activities at FTMC.

Jim Kerr
FTMC UXO Safety Officer

ATTACHMENT 2

Magnetometer/Metal Detector Functions Test Data Sheet

Each magnetometer and/or metal detector will receive a function test at the beginning of each workday and after changing batteries. The function test will include operating the magnetometer/metal detector over a test area developed specifically for ensuring that detection instruments are operating properly. Instruments that do not pass the function test will be tagged out until repairs are made or a replacement instrument is available.

Project Number: _____

Instrument Model: _____

Instrument Serial Number: _____

Date	Person Performing Test	Function Test Results	Remarks

These standard policies and procedures are applicable to all members of The IT Group, Inc. except where superceded or modified by the member Company.

ATTACHMENT 3

Unexploded Ordnance Report Form

Report Tracking Number: _____															
Discovery and Reporting Time															
<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">Time of Discovery</th> </tr> <tr> <td style="width: 50%; text-align: center;">Date</td> <td style="width: 50%; text-align: center;">Time</td> </tr> <tr> <td style="height: 20px;"></td> <td></td> </tr> </table>		Time of Discovery		Date	Time			<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">Time Reported to Base Transition Force</th> </tr> <tr> <td style="width: 50%; text-align: center;">Date</td> <td style="width: 50%; text-align: center;">Time</td> </tr> <tr> <td style="height: 20px;"></td> <td></td> </tr> </table>		Time Reported to Base Transition Force		Date	Time		
Time of Discovery															
Date	Time														
Time Reported to Base Transition Force															
Date	Time														
Employee Name: _____		Reported to FTMC Transitional Force Personnel Name: _____													
Location of Ordnance															
Location, Description, and Parcel Number:															
Coordinates of Ordnance:		<table border="1" style="width: 100%; border-collapse: collapse;"> <tr> <th colspan="2">State Plane Coordinates</th> </tr> <tr> <td style="width: 50%; text-align: center;">Northing</td> <td style="width: 50%; text-align: center;">Easting</td> </tr> <tr> <td style="height: 20px;"></td> <td></td> </tr> </table>		State Plane Coordinates		Northing	Easting								
State Plane Coordinates															
Northing	Easting														
<div style="text-align: right; margin-right: 50px;"> <table border="1" style="width: 80%; border-collapse: collapse;"> <tr> <th colspan="4">Picture Taken of Ordnance</th> </tr> <tr> <td style="width: 25%; text-align: center;">Yes</td> <td style="width: 25%; text-align: center;">No</td> <td style="width: 25%; text-align: center;">Date</td> <td style="width: 25%; text-align: center;">Time</td> </tr> <tr> <td style="height: 20px;"></td> <td></td> <td></td> <td></td> </tr> </table> </div>				Picture Taken of Ordnance				Yes	No	Date	Time				
Picture Taken of Ordnance															
Yes	No	Date	Time												
Written Description and/or Sketch of Ordnance:															
Corrective Action Taken by Fort McClellan Transition Force															
Date															

These standard policies and procedures are applicable to all members of The IT Group, Inc. except where superseded or modified by the member Company.

ATTACHMENT 4

UXO Quality Control Report

Project Location: _____

Date: _____

Work Site Location: _____

Day: _____

1. Personnel Involved:

2. Description of Work Being Performed:

3. Equipment Utilized:

4. Comments:

Completed By

Printed Name & Title

Signature

Date

These standard policies and procedures are applicable to all members of The IT Group, Inc. except where superceded or modified by the member Company.

ATTACHMENT 5

UXO Sketch Location Log

District: _____ Hole Number: _____ Date: _____

Company Name: IT Corporation Subcontractor: _____

Parcel Location: _____ Well Location: _____ Date Started: _____ Date Completed: _____

Type of UXO Work Being Performed:

Most Probable Munition: _____

Down-Hole Depth Achieved for UXO Avoidance: _____

Total Number of Surface UXO Marked: _____

Total Number of Anomalies Marked: _____

Location Sketch/Comments:

Not to Scale

Signature of UXO Technician:

Date:

These standard policies and procedures are applicable to all members of The IT Group, Inc. except where superceded or modified by the member Company.